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Associations and Publications

American Brush Mfrs. Assoc. (ABMA), Philadelphia, PA
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 American Paint Journal Co., St. Louis, MO
 Dover Publications, New York, NY
 Federation of Societies for Paint Tech. (FSPT), Philadelphia, PA
 Goodheart--Willcox
 Painting and Decorating Encyclopedia (Encycl), Homewood, IL
 National Association of Corrosion Engineers (NACE), Houston, TX
 National Paint, Coatings Association (NPCA), Washington, DC
 Painting and Decorating Contractors of America (PDCA), Chicago, IL
 Paint and Wallpaper Logic, New York, NY

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The Society of Naval Architects and Marine Engineers, New York, NY
Steel Structures Painting Council (SSPC), Pittsburgh, PA
Southern Pine Association, New Orleans, LA
Western Wood Products Assoc. (Western), Portland, OR

The following industry sources also provided illustrations:

Air Reduction Co., Inc. (Air Reduction), New York, NY
Allied Chemical Corp., Plastics Division, Morristown, NJ
Aluminum Co. of America (Alcoa), Pittsburgh, PA
American Cyanamid Co., Bound Brook, NJ
Archer Daniels Midland Co., Minneapolis, MN
Arsco Paint Rollers, Inc. (Arsco), Hialeah, FL
Bestt Roller Inc. (Bestt), Fond du Lac, WI
Bil-Jax Inc. (Bil-Jax), Archbold, OH
Binks Mfg. Co. (Binks), Chicago, IL
Brooklyn Paint & Varnish Co., Inc., Brooklyn, NY
CarboLine Co., St. Louis, MO
Ciba Products Co., Summit, NJ
Cities Service Co. (Cities Service), New York, NY
Clemco-Clementina Ltd. (Clemco), San Francisco, CA
Robert C. Collins Co. (Collins), Miami, FL
The DeVilbiss Co. (DeVilbiss), Toledo, OH
Devoe Paint Div. Celanese Ctgs. Co., Newark, NJ
The Joseph Dixon Crucible Co., Jersey City, NJ
E.I. DuPont de Nemours & Co. (DuPont), Wilmington, DE
Eaglo Paint & Varnish Corp., Long Island City, NY
EZ Paintr Corp. (EZ Paintr), Milwaukee, WI
The Flood Co., Hudson, OH
Gardner Laboratory Inc., Bethesda, MD
Gray Co., Minneapolis, MN
Neil B. Garlock (Garlock), Arlington, VA
Hartman-Walsh Painting Co., St. Louis, MO
H & G Industries, Inc. (H & G), Belleville, NJ
Inertol Co. of Koppers Co., Inc., Newark, NJ
Inland Mfg. Co., Omaha, NE
The Marindus Co. (Marindus), Englewood, NJ
David Litter Laboratories (Litter), New York, NY
Merkin Paint Co., Inc., Baltimore, MD
Mine Safety Appliance Co., (Mine Safety), Pittsburgh, PA
Minnesota Mining & Mfg. Co., (3M), St. Paul, MN
Mobil Company, Metuchen, NJ
Benjamin Moore & Co. (Moore), New York, NY
National Lead Co., New York, NY
Nordson Corp. (Nordson), Amherst, OH
Oakite Products, Inc., New York, NY
The Pangborn Corp., (Pangborn), Hagerstown, MD
PPG Industries, Pittsburgh, PA
Pratt & Lambert, Inc., Buffalo, NY
Ply-On Coatings, San Francisco, CA
Purex Corp. Ltd., Wilmington, CA

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 Standard Safety Equipment Co. (Standard), Palatine, IL
 Steelcote Mfg. Co., St. Louis, MO
 Subox Div., Wyandotte Chemicals, Hackensack, NJ
 G. H. Tennant Co. (Tennant), Minneapolis, MN
 Union Carbide Corp., Fibers and Fabrics Div., New York, NY
 United Cooperatives, Inc., Alliance, OH
 Vi-Cly Industries, Compton, CA
 Wald Industries, Inc. (Wald), Huntington, PA
 Montgomery Ward, Chicago Heights, IL
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 Willson Products Div. (Wulson), Reading, PA

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4-28 Holding a Paint Brush	Encycl
4-29 Parts of a Roller	Encycl
4-30 Pipe Roller	Arsco
4-31 Fence Roller	Besett
4-32 Roller and Tray	EZ Paintr
4-33 Roller and 5 Gal. Can	EZ Paintr
4-34 Basic Types of Spray	Nordson
4-35 Types of Spray Equipment	DeVilbiss
4-36 Modern Production Spray Gun	Binks
4-37 Spray Gun--Cross-Section	DeVilbiss
4-40 Spraying Large Flat Areas	Binks
4-41 Spraying Horizontal Surfaces	Binks
4-43 Spraying Edges and Corners	DeVilbiss
4-44 Painting Interior Corners	Binks
4-45 Spray Gun Adjustments & Cleaning	Binks
4-46 Paint Mitt	EZ Paintr
4-47 Paint Mitt in Use	Besett
4-48 Remove Excess Paint	NPCA
4-49 Clean Brush Until No Paint is Noticeable	NPCA
4-50 Twirl Brush After Cleaning	NPCA
4-51 Brush Should be Completely Free of Dirt	NPCA
5-1 Soiling or Dirt Collection (Upper Panel)	Dupont
5-5 Degrees of Chalk	FSPT
5-7 Severe Checking	FSPT
5-8 Severe Cracking	FSPT
5-12 Rusting of Steel	FSPT
5-13 Spring and Summer Wood	USDA
5-14 Wood Grain	USDA
5-15 Bleeding Around Knots	Garlock
5-17 Peeling From Galvanized Steel	Garlock
5-20 Spotty Loss of Gloss	Garlock
5-26 Intercoat Peeling	NPCA
5-31 Moisture From Within A Structure	PDCA
5-32 Faulty Flashing	PDCA
5-34 Moisture Problem Areas	ALCOA
5-35 Venting Outside Walls	NPCA, Western
6-1 Effect of Pigment/Binder on Gloss	Litter
7-1 Moisture Meter	NPCA
9-1 Belt Type Floor Sander	Moore
9-2 Disc Edger	Moore
9-3 Scraping Corners	Moore
9-4 Applying Clear Floor Finishes	Kellogg
11-2 Cutting Stencil	Litter
11-3 Stenciling	Litter
11-6 Application of Overlays	3M
11-7 Hand Propelled Traffic Marker	WALD
11-8 Self Propelled Traffic Marker	WALD
11-9 Traffic Marker--Truck Model	WALD